

## ABSTRACT

Disclosed are copper electroplating solutions, methods for using the solutions and products formed by using such methods and solutions in which the solutions contain copper alkanesulfonate salts and free alkanesulfonic acids, wherein the free acid has a concentration from about 0.05 to about 2.50 M, and which are intended for the metallization of micron-sized dimensioned trenches or vias, through-holes and microvias.